Device for Plant Monitoring

SUNNY WEBBOX with *Bluetooth*® Wireless Technology

Installation Manual

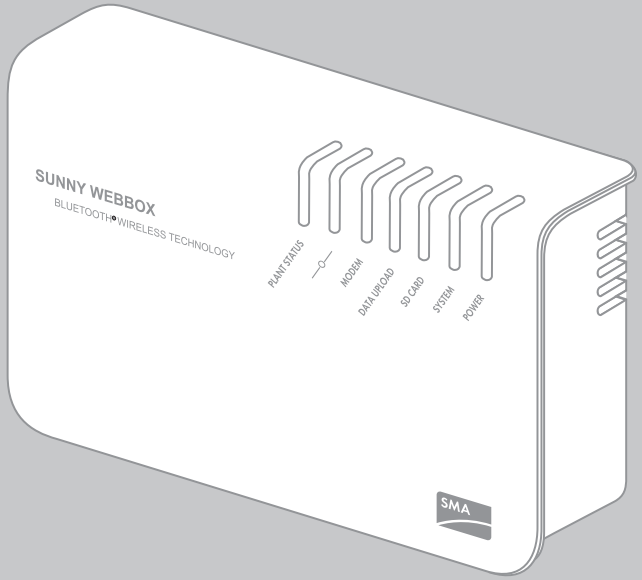


Table of Contents

1 Information on this Manual 7
1.1 Validity 7
1.2 Additional Information 7
1.3 Symbols Used 8
1.4 Terminology 8
2 Safety 9
2.1 Intended Use 9
2.1.1 Supported Products 10
2.1.2 Target Group 10
2.1.3 System Requirements 11
2.2 Safety Precautions 11
3 Scope of Delivery 12
4 Product Description 13
4.1 Sunny WebBox with *Bluetooth* 13
4.2 Type Label 14
4.3 LED Overview 15
4.4 Connection Area Overview 17
4.5 *Bluetooth* Module Overview 17
4.5.1 *Bluetooth* Module LED Overview 18
4.6 Overview of the LEDs on the Network Connection 18
5 Assembly 19
5.1 Requirements for the Mounting Location 19
5.2 Determining the Mounting Location for *Bluetooth* PV Plants . . . 20
5.2.1 Information on SMA *Bluetooth* 20
5.2.2 Determining the Mounting Location 20
5.2.3 Extending the *Bluetooth* Network with the SMA *Bluetooth* Repeater 20

5.3 Mounting the Sunny WebBox on the Wall 21
5.4 Mounting the Sunny WebBox on the Top-Hat Rail 22

6 Commissioning 23
6.1 Information on Commissioning 23
6.2 Configuring *Bluetooth* Settings for the Sunny WebBox 24
6.3 Connecting the Sunny WebBox Directly to the Computer 25
6.4 Configuring the Network Settings on the Computer 26
6.4.1 Information on Network Settings on the Computer 26
6.4.2 Windows 7, Windows Vista 26
6.4.3 Windows XP, Windows 2000 28
6.5 Logging into the Sunny WebBox for the First Time 30
6.6 Configuring Sunny WebBox for the Local Network 31
6.6.1 Using Dynamic Network Settings (DHCP) 31
6.6.2 Applying Static Network Settings (Deactivating DHCP) 32
6.6.3 Connecting the Sunny WebBox to the Local Network 33

7 Logging into and out of the Sunny WebBox 34
7.1 Logging into the Sunny WebBox 34
7.2 Logging out of the Sunny WebBox 35

8 Connecting Sunny WebBox Internet Access 36
8.1 Information on Sunny WebBox Internet Access 36
8.2 Making Proxy Settings 36
8.3 Setting the HTTP Port 37
8.4 Setting the NAT Port 37

9 Service Functions 38
9.1 Performing Own Update for Sunny WebBox 38
9.1.1 Information 38
9.1.2 Firmware Update via the Internet (Recommended) 38
9.1.3 Firmware Update via the SD Card 40

9.2 Restarting the Sunny WebBox via the User Interface 41
9.3 Resetting the Sunny WebBox Using the Reset Button 42
9.4 Determining the Current Network Settings of the Sunny WebBox via the SD Card 43

10 Maintenance and Care 44
10.1 Maintenance 44
10.2 Care 44

11 Decommissioning 45
11.1 Dismounting the Sunny WebBox 45
11.2 Packaging the Sunny WebBox 46
11.3 Disposing of the Sunny WebBox 46

12 Troubleshooting 47
12.1 General Troubleshooting for the Sunny WebBox 47
12.2 Troubleshooting the *Bluetooth* Connection 50

13 Accessories 52

14 Appendix 53
14.1 Information on the SD Card 53
14.2 Structure of the config.xml File 53
14.3 Structure of an XML Data File 55
14.4 Information on Your Internet Browser 56
14.5 Setting up a Proxy Exception Rule in Internet Explorer 56
14.6 Activating IPv6 in Windows XP SP2 57
14.7 Allocating an IP Address in a Local Network 57

15 Technical Data 58
15.1 Sunny WebBox with *Bluetooth* 58
15.2 Plug-in Power Supply Units 59
15.2.1 CINCON, TRG30R 120. 59
15.2.2 TaiyTech, TYT251200200UV/3000 59
15.2.3 TaiyTech, TYT251200200EU/3000 59
16 Contact 60

1 Information on this Manual

This manual describes the installation and commissioning of the Sunny WebBox with *Bluetooth*. Keep this manual in a convenient place for future reference. This manual does not contain any detailed information about the connected devices. Detailed information on connected devices is provided in the device manuals.

1.1 Validity

This installation manual is valid for Sunny WebBox with *Bluetooth* from hardware version A1 and from firmware version 1.04.

1.2 Additional Information

Links to additional information can be found at www.SMA-Solar.com.

Document title	Document type
SMA *Bluetooth* – SMA *Bluetooth*® Wireless Technology in Practice	Technical information
SMA Safety and Password Concept for Password-Protected PV Plants with *Bluetooth*® Wireless Technology	Technical description

You can call up the Sunny WebBox with *Bluetooth* user manual on the user interface via the Help button .

1.3 Symbols Used

The following types of safety precautions and general information appear in this document:

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, can result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation which, if not avoided, could result in property damage.

Information

Information provides tips that are valuable for effective installation and operation of the product.

1.4 Terminology

The term photovoltaic plant is abbreviated to PV plant in this manual. Additionally, the product name "Sunny WebBox with *Bluetooth*® Wireless Technology" is shortened to "Sunny WebBox" in the running text.

Formatting	Meaning
[Save]	Buttons are displayed in square brackets [].
"Menu1"	Menu items are displayed in quotation marks.
"Menu1 > Menu2"	Menu paths are displayed in quotation marks. The angle bracket > separates individual menus.
Example:	Examples are represented in italics.

2 Safety

2.1 Intended Use

The Sunny WebBox with *Bluetooth* is a communication device that records and logs the data of a PV plant and makes it available via a user interface using the integrated web server. Additionally, the Sunny WebBox can be used for remote diagnosis and the configuration of connected devices in a PV plant via the computer.

The Sunny WebBox is intended for private and industrial use. The Sunny WebBox data is not suitable for billing purposes. The data collected by the Sunny WebBox on the amount of power generated by your plant may deviate from the energy meter data. Additional costs can be incurred from the use of the Internet.

The Sunny WebBox is only suitable for indoor use.

The Sunny WebBox is only to be operated using the supplied plug-in power supply and in the voltage range intended for this.

The Sunny WebBox must be continuously supplied with current.

- Do not operate the Sunny WebBox using a timer.

The Sunny WebBox is only to be used with original accessories or recommended accessories approved by SMA Solar Technology AG.

Only use the Sunny WebBox for the purposes described in this manual.

For safety reasons, it is not permitted to modify the product or install components that are not explicitly recommended or distributed by SMA Solar Technology AG for this product.

The enclosed documentation is part of this product.

- Read and observe the documentation.
- Keep the documentation in a convenient place for future reference.

2.1.1 Supported Products

The Sunny WebBox supports the following SMA products:

- all SMA inverters with integrated *Bluetooth*

Inverters of type SB x000TL-20 are only supported from firmware version 2.06

- In those inverters with a firmware version below 2.06, update the inverter firmware via SD card (see technical description "Firmware Update with SD Card" at www.SMA-Solar.com).

- SMA inverters with retrofitted SMA *Bluetooth* Piggy-Back/SMA *Bluetooth* Piggy-Back Plus from firmware version 02.00.00.R. A list of the supported inverters can be found in the SMA *Bluetooth* Piggy-Back/SMA *Bluetooth* Piggy-Back Plus manual.
- Sunny Backup with retrofitted SMA *Bluetooth* Piggy-Back Off-Grid from firmware version 01.00.00.R. A list of the supported Sunny Backups can be found in the SMA *Bluetooth*Piggy-Back Off-Grid manual.
- Power Reducer Box
- Sunny Matrix from firmware version 2.10.00
- SMA *Bluetooth* Repeater
- Sunny SensorBox with SMA Power Injector with *Bluetooth*
- SMA radio-controlled socket

Updating the firmware of SMA products

In order for *Bluetooth* communication to function correctly in the plant, the firmware of the SMA products must be completely up to date.

- Before commissioning the Sunny WebBox, update the firmware of the SMA products (see the manuals of the SMA products).

2.1.2 Target Group

This document is intended for end users and skilled persons. When you log in to the Sunny WebBox there are two user groups at your disposal, "Installer" and "User". The "Installer" user group may only be used by qualified personnel who are authorised to make changes to grid-relevant parameters for the connected devices.

2.1.3 System Requirements

Recommended screen resolution:

- 1,024 pixels x 768 pixels

Internet browser:

- Internet Explorer from version 8
- Firefox from version 3.6

2.2 Safety Precautions

General safety precautions in order to avoid physical injury

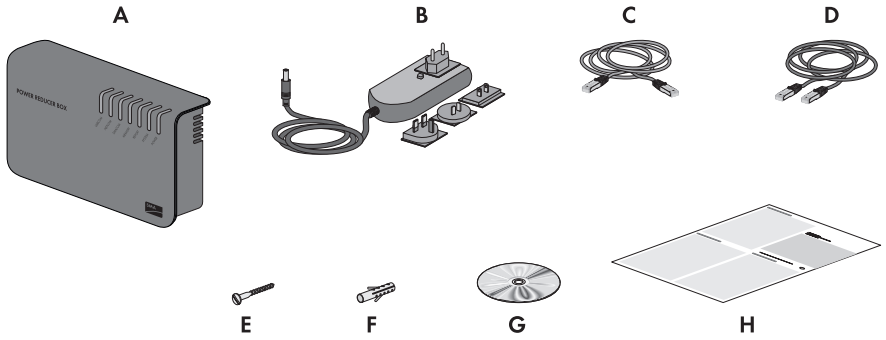
- Do not open the device or the plug-in power supply.
- Install the cabling in such a way that no one can stand on or trip over it.

General information for preventing property damage

- By touching electronic components, you can cause damage to or destroy the device through electrostatic discharge (ESD). Avoid touching component connections and plug contacts. Earth yourself before working on the device.
- With the help of the Sunny WebBox with *Bluetooth* you can change safety-related parameters of the SMA inverters (e.g. SMA Grid Guard parameters). Incorrectly configured parameters can lead to yield losses. Do not alter these safety-relevant parameters without prior consultation with your power supply company operating the electricity grid into which your plant feeds.
- The saving procedure for parameters can take up to 30 seconds. Do not disconnect the Sunny WebBox with *Bluetooth* from the voltage supply during the save procedure. If you disconnect the Sunny WebBox from the voltage supply during the save procedure, data may be lost.

3 Scope of Delivery

Check the delivery for completeness and for any external damage. Please contact your specialist dealer if you find any damage or if there are parts missing.

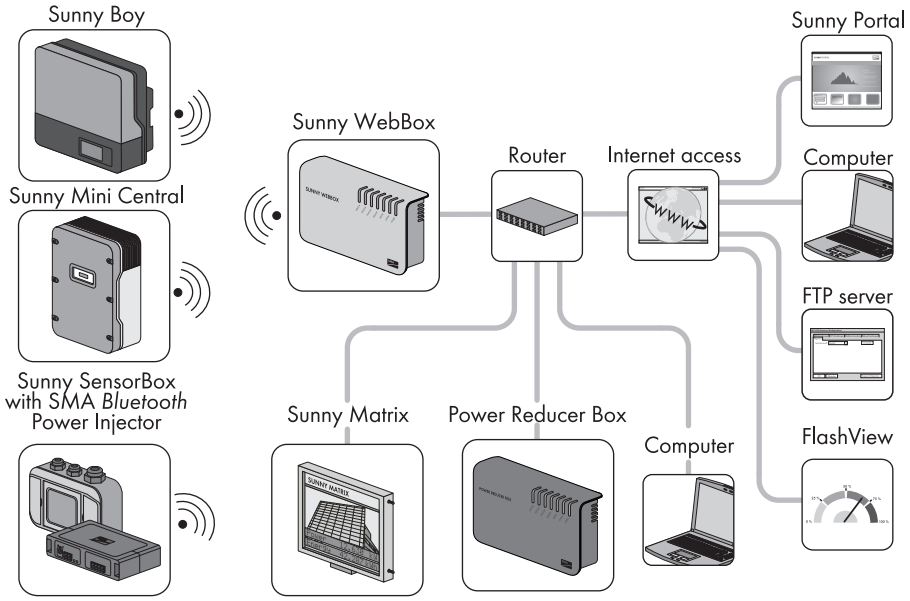


Item	Quantity	Description
A	1	Sunny WebBox with *Bluetooth*
B	1	Plug-in power supply with travel adapter
C	1	Patch cable (red)
D	1	Patch cable (blue)
E	2	Screws (M6)
F	2	Wall plugs (M6)
G	1	CD with installation manual, user manual and Sunny WebBox Assistant
H	1	Quick reference guide for commissioning

4 Product Description

4.1 Sunny WebBox with *Bluetooth*

The Sunny WebBox with *Bluetooth* is a communication device that records and logs the data of a PV plant and makes it available via a user interface using the integrated web server. Additionally, the Sunny WebBox can be used for remote diagnosis and the configuration of connected devices in a PV plant via the computer.



The Sunny WebBox can continuously request and evaluate the data of the connected devices. The query interval for the data of the entire PV plant is five minutes. If you display data via the user interface of the Sunny WebBox, the currently displayed data will be requested every 20 seconds. If the connection to the PV plant is broken, the Sunny WebBox re-establishes the connection as soon as this is possible.

The Sunny WebBox can automatically send the PV plant data to the Sunny Portal Internal portal or a freely selectable FTP server for further processing. In addition, you can present your plant data via the Sunny Matrix large view or the FlashView software.

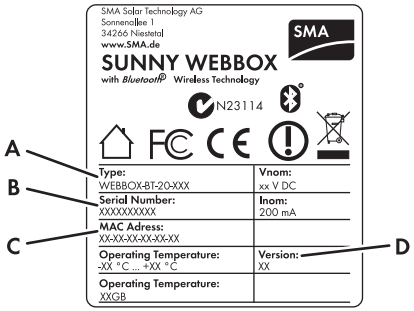
You can use a Power Reducer Box together with the Sunny WebBox in order to involve the plant in grid management. The Sunny WebBox can receive the requirements of the network operator via the Power Reducer Box and forward them to the inverters in the PV plant.

The Sunny WebBox has the function of a grid-forming device (master device) in the *Bluetooth* plant. Master devices are communication products which form the structure of the *Bluetooth* PV plant and collect, evaluate and process data. Unlike other master devices, the Sunny WebBox can establish up to five uplinks, meaning that it can directly connect to five devices simultaneously. It can also assume the function of a slave/root node and be involved in establishing a *Bluetooth* network. In this way, the Sunny WebBox can connect multiple groups of inverters to one another that would not otherwise have had a *Bluetooth* connection.

The number of devices which the Sunny WebBox can manage depends on the number of master devices in the *Bluetooth* network with the same NetID. If the Sunny WebBox is the only Master in the *Bluetooth* network, the Sunny WebBox can manage up to 50 devices. If two masters are present in the *Bluetooth* network (e.g. Sunny Explorer or Sunny Beam with *Bluetooth*), a maximum of 25 devices can be managed by the Sunny WebBox. A maximum of one Sunny WebBox with *Bluetooth* is allowed in a *Bluetooth* network with the same NetID. Additional information about SMA *Bluetooth* Wireless Technology can be found in the download area at www.SMA-Solar.com.

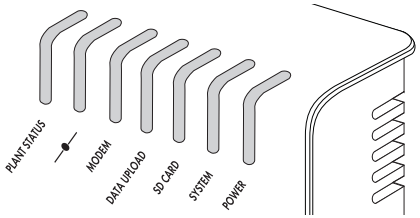
4.2 Type Label

The type label clearly identifies the Sunny WebBox. The type label can be found on the back of the enclosure.



Item	Description	Explanation
A	Type	Device type
B	Serial number	Serial number of the device
C	MAC Address	MAC address of the device
D	Version	Hardware version of the device

4.3 LED Overview

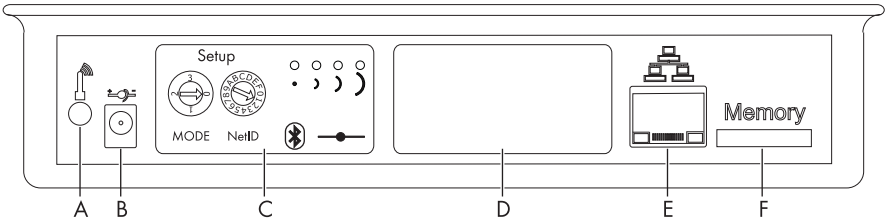


LED designation	Status	Meaning
"PLANT STATUS"	Glowing green	All devices in the PV plant have the status "OK".
	Glowing orange	At least one device in the PV plant has the "Warning" status.
	Glowing red	At least one device in the PV plant has the "Fault" status.
	Flashing orange	The Sunny WebBox is sending update files to the devices in the PV plant.*
	Off	There is no device available in the PV plant.*
—●—	Glowing green	Login for all connected devices is OK.
	Glowing orange	Login for at least one connected device is not OK.
	Glowing red	Login for all connected devices is not OK.
"MODEM"	Off	Not assigned
"DATA UPLOAD"	Glowing green	The data transmission to the Sunny Portal or an external FTP server is active. Last upload was successful.
	Flashing green	The Sunny WebBox is sending data to Sunny Portal or an external FTP server.
	Glowing red	The last data transmission to Sunny Portal or an external FTP server was not successful.
	Off	Data transmission is deactivated.

LED designation	Status	Meaning
"SD CARD"	Glowing green	The SD card is inserted, writeable and the free memory capacity is more than 10% of the overall capacity.
	Flashing green	The SD card is being written to. The free memory capacity is more than 10% of the overall capacity.
	Glowing orange	The SD card is inserted, writeable and the free memory capacity is less than or equal to 10% of the overall capacity.
	Flashing orange	The SD card is being written to. The free memory capacity is less than or equal to 10% of the overall capacity.
	Glowing red	The SD card is full or write-protected or there is an update file on the SD card.
	Off	No SD card is inserted.
"SYSTEM"	Glowing green	The Sunny WebBox is ready for operation.
	Flashing green	The Sunny WebBox is starting.
	Flashing orange	The Sunny WebBox is performing a firmware update.
	Flashing red	A system fault has occurred.
"POWER"	Glowing green	The Sunny WebBox is supplied with voltage.
	Off	The Sunny WebBox is not supplied with voltage.

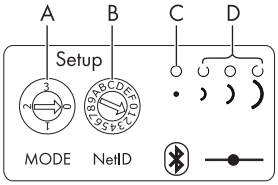
*The SMA radio-controlled socket, SMA *Bluetooth* Repeater and SMA *Bluetooth* Power Injectors do not have any influence on the "PLANT STATUS" LED.

4.4 Connection Area Overview



Item	Description
A	Connection for GSM antenna cable (not used)
B	Connection for the plug-in power supply
C	*Bluetooth* module
D	Module slot (not used)
E	Network connection for 10/100 MBit Ethernet
F	SD card slot

4.5 *Bluetooth* Module Overview

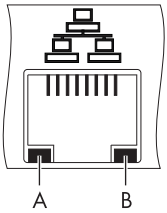


Item	Description
A	"MODE" rotary switch
B	"NetID" rotary switch
C	*Bluetooth* LED (blue)
D	Connection display (not used)

4.5.1 *Bluetooth* Module LED Overview

Status *Bluetooth* LED (blue)	Meaning
Glowing	*Bluetooth* connection established
Off	No *Bluetooth* connection established

4.6 Overview of the LEDs on the Network Connection



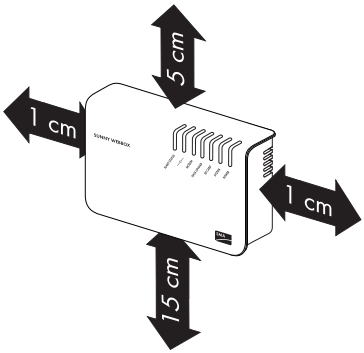
Item	LED	Status	Meaning
A	Link	On	Connection established
		Off	No connection established
B	Activity	On	Connection established, no data is being sent or received
		Flashing	Data is being transmitted or received
		Off	No connection established

5 Assembly

5.1 Requirements for the Mounting Location

Note the following information on the mounting location of the Sunny WebBox:

- The Sunny WebBox is only suitable for installation in enclosed spaces.
- The ambient temperature must remain between –20°C and +65°C.
- Protect the Sunny WebBox from dust, wet conditions, corrosive substances and vapours.
- Observe the minimum clearances to walls, other devices or objects as shown in the diagram in order to guarantee sufficient heat dissipation.



- Do not cover the Sunny WebBox.
- The distance from the Sunny WebBox to the inverters may not be greater than the maximum permitted distance of the corresponding plant communication type. Note the specifications in the respective sections.
- During installation, make sure there is optimum reception for the transmission paths.
- Certain ambient conditions can reduce the connection quality and data transmission speed between *Bluetooth* devices.
  - Mount or install the *Bluetooth* device at a distance of at least 1 m from the following devices:
    - WLAN devices
    - Microwave ovens
    - Other devices that use the 2.4 GHz radio spectrum

5.2 Determining the Mounting Location for *Bluetooth* PV Plants

5.2.1 Information on SMA *Bluetooth*

The devices in your PV plant can communicate and network with a communication device via *Bluetooth*. To ensure that the devices communicate with each other and are interlinked, they have to be set to the same NetID. The NetID is a unique identification number of your PV plant. Thus, the NetID distinguishes your PV plant from other PV plants.

Determining the NetID for your PV plant

If your PV plant does not yet have a NetID, you must first determine a free NetID using the Sunny Explorer software and set this for your devices in the PV plant.

NetID 1 is currently not supported by the Sunny WebBox with *Bluetooth*

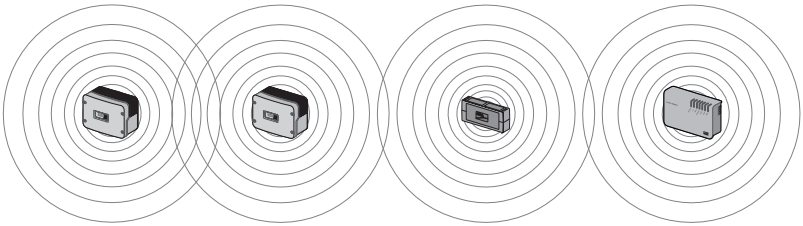
It is currently only possible to establish a direct connection to an individual SMA *Bluetooth* device via NetID 1 using the Sunny Explorer software or the Sunny Beam with *Bluetooth*.

Change the NetID of the Sunny WebBox with *Bluetooth* to the NetID of your PV plant (NetID 2 to NetID F).

5.2.2 Determining the Mounting Location

Before you mount the Sunny WebBox, check the connection quality between the Sunny WebBox and your PV plant at the intended mounting location of the Sunny WebBox. The connection quality can be checked using the Sunny Explorer or the Sunny Beam with *Bluetooth* (see the user manual of the respective device). You can change the connection quality by reducing and increasing the distance between the *Bluetooth* devices.

5.2.3 Extending the *Bluetooth* Network with the SMA *Bluetooth* Repeater



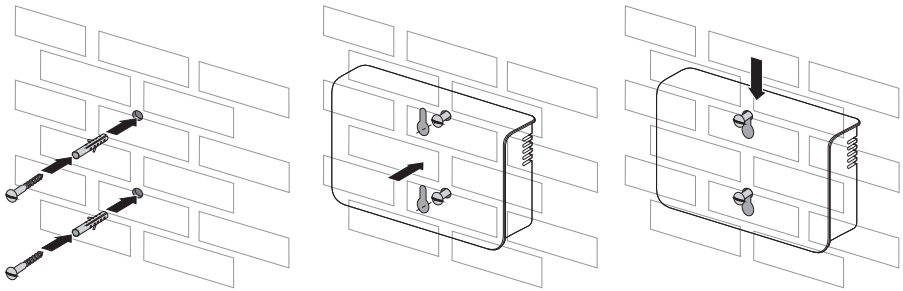
The SMA *Bluetooth* Repeater transmits the data traffic within a *Bluetooth* network. If you install the SMA *Bluetooth* Repeater on the limit of the radio range, the SMA *Bluetooth* Repeater extends the range of the Sunny WebBox. Thus you can also connect remote devices via *Bluetooth*.

5.3 Mounting the Sunny WebBox on the Wall

Noting the serial number

Before mounting the Sunny WebBox, make a note of the serial number given on the type label. You will require the serial number later to call up the Sunny WebBox user interface.

1. Take the relevant requirements into account when defining the mounting location.
2. Use the drilling template to determine the position of the Sunny WebBox and to mark the drilling holes with a pen.
3. Drill holes with 6 mm diameter at the marked points and insert wall plugs.
4. Screw in the screws and leave approx 6 mm protruding from the wall.
5. Hang the Sunny WebBox from the screws.

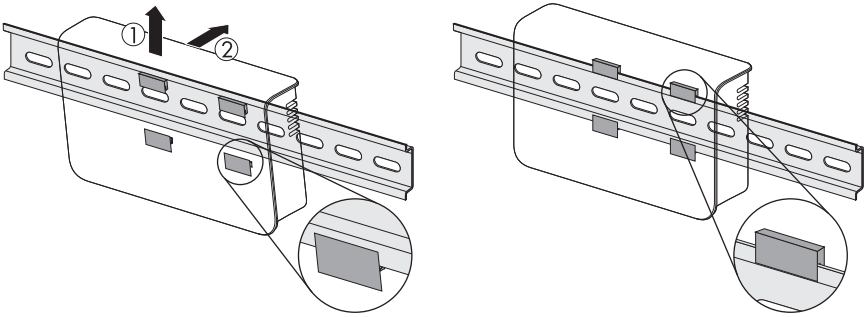


5.4 Mounting the Sunny WebBox on the Top-Hat Rail

Noting the serial number

Before mounting the Sunny WebBox, make a note of the serial number given on the type label. You will require the serial number later to call up the Sunny WebBox user interface.

1. Take the relevant requirements into account when defining the mounting location.
2. Hook the two lower retainers of the Sunny WebBox onto the lower edge of the top-hat rail.
3. Press the Sunny WebBox upwards and snap it into the upper retainer.



6 Commissioning

6.1 Information on Commissioning

There are two options for commissioning the Sunny WebBox:

- Commissioning the Sunny WebBox using the Sunny WebBox Assistant (recommended)
- Commissioning the Sunny WebBox without the Sunny WebBox Assistant

Commissioning the Sunny WebBox using the Sunny WebBox Assistant

The Sunny WebBox Assistant is a software program which assists you with the commissioning of the Sunny WebBox. Sunny WebBox Assistant can be found on the supplied CD and in the download area at www.SMA-Solar.com.

- Use the quick reference guide for Sunny WebBox commissioning.

  or

- Proceed as follows:
  - Configure the *Bluetooth* settings of the Sunny WebBox (see page 24).
  - Connect the Sunny WebBox directly to the computer (see page 25) or to the local network (see page 33).
  - Start the Sunny WebBox Assistant on your computer.
  - Follow the instructions in the Sunny WebBox Assistant.

Commissioning the Sunny WebBox without the Sunny WebBox Assistant

Proceed as follows:

- Configure the *Bluetooth* settings of the Sunny WebBox (see page 24).
- Connect the Sunny WebBox directly to the computer (see page 25).
- Configure the network settings on the computer (see page 26).
- Configure the Sunny WebBox for the local network (see page 31).

6.2 Configuring *Bluetooth* Settings for the Sunny WebBox

You can configure the *Bluetooth* settings of the Sunny WebBox via the rotary switch of the *Bluetooth* module. For this purpose, use a screwdriver with blade width of 2.5 mm.

Changing the NetID during operation of the Sunny WebBox

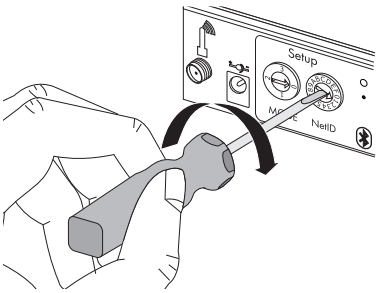
If you change the NetID during operation of the Sunny WebBox, the Sunny WebBox will restart. Afterwards, the Sunny WebBox searches for all devices with the same NetID and displays them in the plant tree.

NetID 1 is currently not supported by the Sunny WebBox with *Bluetooth*

It is currently only possible to establish a direct connection to an individual SMA *Bluetooth* device via NetID 1 using the Sunny Explorer software or the Sunny Beam with *Bluetooth*.

Change the NetID of the Sunny WebBox with *Bluetooth* to the NetID of your PV plant (NetID 2 to NetID F).

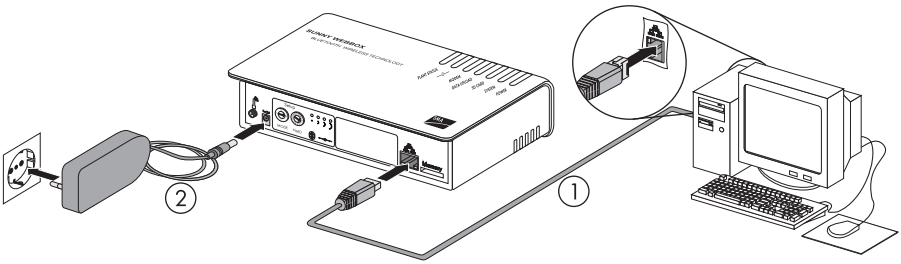
1. Turn the "MODE" rotary switch to position "0". The rotary switch must always be set to position "0" (default setting). Other positions are not permitted and are intended for SMA Service only.
2. Turn the arrow of the "NetID" rotary switch to the NetID of the PV plant. For a layout of the switch positions, see the table.



NetID	Function
0	*Bluetooth* is switched off.
1 (default setting)	No function
2 ... F	*Bluetooth* is switched on. The Sunny WebBox can network with all SMA *Bluetooth* products with the same NetID. It is not possible to connect to the Sunny Beam with *Bluetooth* or Sunny Explorer.

☑ The Sunny WebBox is prepared for *Bluetooth* communication.

6.3 Connecting the Sunny WebBox Directly to the Computer



1. Use the **blue** patch cable (Ethernet crossover cable) to connect the Sunny WebBox directly to the computer (see ①). The terminal on the computer is generally marked with the same symbol as the network connection of the Sunny WebBox. If necessary, refer to the computer manual.

Recommendation on network cabling

Should the patch cable supplied be too short, observe the following when buying a longer cable:

- You need an Ethernet crossover cable.
- Unnecessarily long cables have an adverse effect on the signal quality. The maximum permitted cable length is 100 m per segment.
- Use a high quality shielded twisted pair cable of category 5 (FTP Cat 5) or higher.

2. Connect the plug-in power supply to the Sunny WebBox and plug it into the socket-outlet (see ②).

   ☑ The Sunny WebBox starts up and is ready for operation once the "SYSTEM" and "POWER" LEDs are green. The start-up procedure can take up to 90 seconds.

   – If the "SYSTEM" or "POWER" LEDs do not glow green, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).

3. Set the computer to the network area of the Sunny WebBox (see Section 6.4 "Configuring the Network Settings on the Computer" (page 26)).

6.4 Configuring the Network Settings on the Computer

6.4.1 Information on Network Settings on the Computer

If you do **not** use the Sunny WebBox Assistant for initial start-up of the Sunny WebBox, you need to make the network settings manually on the computer. To do so, first configure your computer based on the Sunny WebBox network range on delivery.

Read the respective section for the operating system of your computer. If you use an operating system that is not described, refer to the manual of your operating system to find out how to set the computer to IP address 192.168.0.100 and the Subnet mask to 255.255.255.0. You can then configure the Sunny WebBox for a local network via the user interface (see page 31).

User rights in the operating system

You need the respective user rights on the computer used to commission the Sunny WebBox in order to be able to make changes to the network settings. If you have any questions, consult your system administrator.

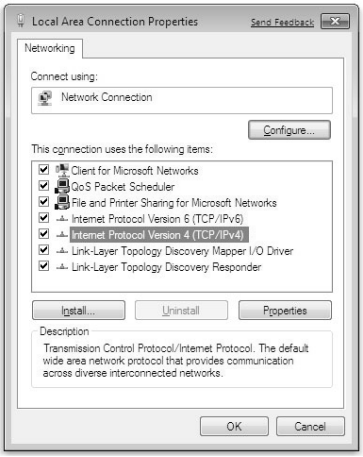
6.4.2 Windows 7, Windows Vista

1. Start the computer.
2. In Windows, select "Start".
3. Enter "ncpa.cpl" in the search field and press the enter key.
   ☑ The "Network Connections" window opens.
4. Double-click the LAN connection used to connect the Sunny WebBox.
   – If Windows displays several LAN connections, there are probably several network connections installed on the computer. Ensure that you select the network connection that the computer is using to connect to the Sunny WebBox. If necessary, refer to the manual of your computer.
   – If no LAN connection is displayed, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).
   ☑ The "Local Area Connection Status" window opens.
5. In the "General" tab, select [Properties].

☑ The "Local Area Connection Properties" window opens.

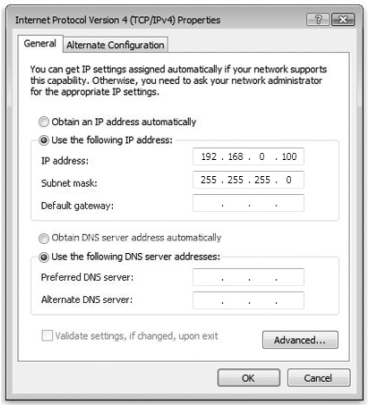
6. Mark "Internet Protocol Version 4 (TCP/IPv4)" and select [Properties].

☑ The "Internet Protocol Version 4 (TCP/IPv4) Properties" window opens.



7. Note the current network settings in the "Internet Protocol Version 4 (TCP/IPv4) Properties" window. This will enable you to reset the computer network settings after configuration of the Sunny WebBox.

8. Enter the following static network settings for the computer in the "Internet Protocol Version 4 (TCP/IPv4) Properties" window:
   - Check the "Use the following IP address" field.
   - Enter 192.168.0.100 into the "IP address:" field.
   - Enter 255.255.255.0 into the "Subnet mask:" field.
   - Delete any entries in the "Default gateway", "Preferred DNS server" and "Alternate DNS server" fields.
9. Select [OK].


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 100
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings, if changed, upon exit
Advanced...
OK
Cancel

10. In the "Local Area Connection Properties" window, select [OK].

☑ The computer is set to the network settings of the Sunny WebBox.

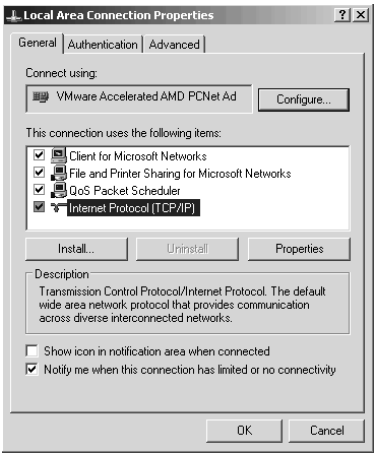
6.4.3 Windows XP, Windows 2000

1. Start the computer.
2. In Windows, select "Start > Settings > Network Connections".
3. Double-click the LAN connection used to connect the Sunny WebBox.
   - If Windows displays several LAN connections, there are probably several network connections installed on the computer. Ensure that you select the network connection that the computer is using to connect to the Sunny WebBox. If necessary, refer to the manual of your computer.
   - In the event that no LAN connection is displayed, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).

   ☑ The "Local Area Connection Status" window opens.
4. In the "General" tab, select [Properties].

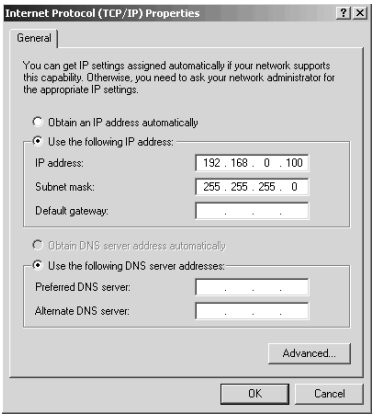
   ☑ The "Local Area Connection Properties" window opens.
5. Mark "Internet Protocol (TCP/IP)" and select [Properties].

   ☑ The "Internet Protocol (TCP/IP) Properties" window opens.



6. Note the current network settings in the "Internet Protocol (TCP/IP) Properties" window. This will enable you to reset the computer network settings after configuration of the Sunny WebBox.

7. Enter the following static network settings in the "Internet Protocol (TCP/IP) Properties" window:
   - Check the "Use the following IP address" field.
   - Enter 192.168.0.100 into the "IP address:" field.
   - Enter 255.255.255.0 into the "Subnet mask:" field.
   - Delete any entries in the "Default gateway", "Preferred DNS server", and "Alternate DNS server" fields.
8. Select [OK].


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 100
Subnet mask: 255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

9. In the "Local Area Connection Properties" window, select [OK].

☑ The computer is set to the network settings of the Sunny WebBox.

6.5 Logging into the Sunny WebBox for the First Time

1. Start Internet browser (e.g. Internet Explorer).

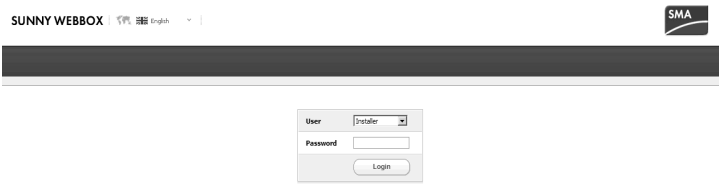
Enabling JavaScript in the Internet browser

The Sunny WebBox user interface needs JavaScript in order to be able to correctly display and execute the contents and functions of the Sunny WebBox. Ensure that JavaScript is activated in your Internet browser. If necessary, refer to the help section of your Internet browser.

2. Enter *http://192.168.0.168* into the address bar and press the enter key.

☑ The Sunny WebBox login page opens.

– If the page does not open, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).



3. Log in to the Sunny WebBox as the user or installer. Upon delivery, the password for the User is "0000" and the password for the Installer is "1111".

Security in the local network

Change the default password of all user groups promptly in order to avoid unauthorised access.

6.6 Configuring Sunny WebBox for the Local Network

Information on Integrating the Sunny WebBox into a Local Network

Protecting the Ethernet network from external attacks

Protect your Ethernet network through suitable security measures such as a firewall and through the allocation of secure passwords (see the Sunny WebBox user manual). After the first login to the Sunny WebBox, please change the passwords for each user group.

Changing network settings

Do not change any network settings in the network devices if you are not clear about the effects of the change. Changes to values could lead to the existing network not functioning or only partially functioning. If you have any questions, contact your network administrator.

You have the following options for integrating the Sunny WebBox into the local network:

- Using dynamic network settings (DHCP)
- Making static network settings

6.6.1 Using Dynamic Network Settings (DHCP)

When using DHCP (Dynamic Host Configuration Protocol), the Sunny WebBox obtains its network settings (IP address, subnet mask, gateway and DNS server) via a DHCP server.

Default settings

DHCP is activated in the Sunny WebBox by default.

DHCP server requirements

If you want to obtain the network settings for the Sunny WebBox via DHCP, check your DHCP server in advance. The DHCP server must extend the lease of the assigned IP address. If the DHCP server assigns a new IP address after the lease has expired, we do not recommend using DHCP.

You can only call up the user interface via the URL **http://WebBox"serial number"** if your DHCP server has a DNS function.

If your DHCP server does not have a DNS function but you want to use DHCP, you can call up the user interface via the current IP address of the Sunny WebBox. You can determine the current IP address via the SD card (see page 43). Alternatively, you can find the Sunny WebBox IP address in the DHCP server. A DHCP server can normally list all devices to which you have assigned an IP address. You can then identify the Sunny WebBox based on your MAC address. The MAC address is located on the type label of the Sunny WebBox.

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > DHCP" parameter group.
4. Select [Edit].
5. Select "Yes" in the "Activated" field.
6. Select [Save].

6.6.2 Applying Static Network Settings (Deactivating DHCP)

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > Ethernet" parameter group.
4. Select [Edit].
5. In the "DNS server IP" field, enter the IP address of the DNS server (Domain Name System Server). Usually, the IP address of the router has to be entered here.
6. Enter the gateway IP address of your network into the "Gateway IP" field. Usually, the IP address of the router has to be entered here.
7. In the "IP Address" field, enter the static IP address under which the Sunny WebBox is to be accessed in the local network (see Section 14.7 "Allocating an IP Address in a Local Network" (page 57)).
8. In the "Subnet mask" field, enter the subnet mask of your network. Normally, you can find this information in the router manual.
9. In the "DHCP" parameter group, select "No" in the "Activated" field.
10. Select [Save].

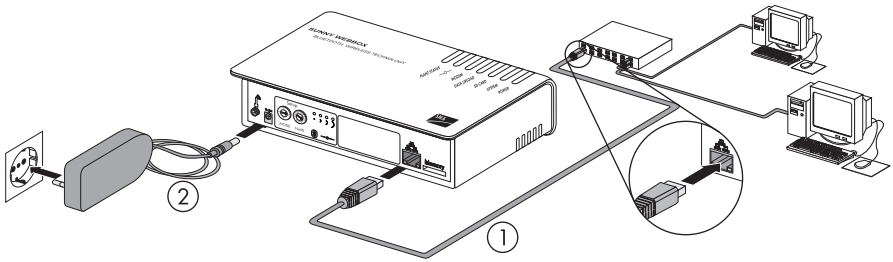
    ☑ The Sunny WebBox saves the network settings. The saving procedure can take up to 30 seconds. Do **not** disconnect the Sunny WebBox with *Bluetooth* from the voltage supply during the save procedure. The saving procedure is complete once you are directed to the new IP address or the Sunny WebBox is no longer available via the Internet browser.

Resetting the computer to the network settings

Reset your computer to the original network settings in order that you can reach it via the local network when required (see Section 6.4 "Configuring the Network Settings on the Computer" (page 26)).

11. Once the saving procedure is completed, remove the plug-in power supply of the Sunny WebBox from the socket-outlet.
12. Remove the patch cable (blue).

6.6.3 Connecting the Sunny WebBox to the Local Network



1. Connect the Sunny WebBox directly to the remote terminal (e.g. router, network switch or Ethernet hub) of the local network using the **red** patch cable (see ①). The connection of the remote terminal is normally identified by the same symbol as the Sunny WebBox network connection. If necessary, please refer to the remote terminal manual.

Recommendation on network cabling

Should the patch cable supplied be too short, observe the following when buying a longer cable:

- You require a patch cable.
- Unnecessarily long cables have an adverse effect on the signal quality. The maximum permitted cable length is 100 m per segment.
- Use a high quality shielded twisted pair cable of category 5 (FTP Cat 5) or higher.

2. Connect the plug-in power supply to the Sunny WebBox and plug it into the socket-outlet (see ②).

   ☑ The Sunny WebBox starts up and is ready for operation once the "SYSTEM" and "POWER" LEDs glow green. The start-up procedure can take up to 90 seconds.

   – If the "SYSTEM" or "POWER" LEDs do not glow green, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).

☑ The user interface of the Sunny WebBox is now available via the new IP address or the URL **http://WebBox"serial number"** (see Section 7 "Logging into and out of the Sunny WebBox" (page 34)).

7 Logging into and out of the Sunny WebBox

7.1 Logging into the Sunny WebBox

Unauthorised access to your PV plant

The plant password protects your plant from unauthorised access.

- After logging in for the first time, change the default password for both user groups.

Plant password at delivery

All devices are delivered with the user password 0000 and the installer password 1111.

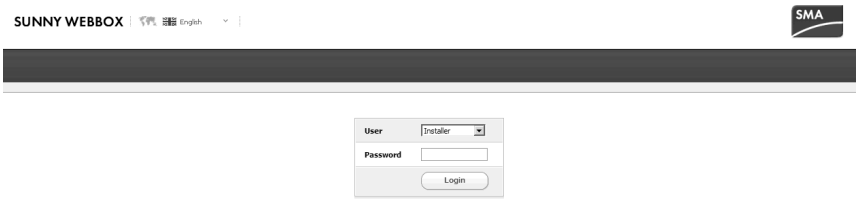
1. Start Internet browser (e.g. Internet Explorer).
2. If you use DHCP for the Sunny WebBox (default setting), enter the URL **http://WebBox"serial number"**, e.g., http://WebBox895903467 in the address bar and press the enter key. Tip: you can find the serial number on the type label (see Section 4.2 "Type Label" (page 14)) or determine it using the SD card (see Section 9.4 "Determining the Current Network Settings of the Sunny WebBox via the SD Card" (page 43)).

   ☑ The Sunny WebBox login page opens.

   – If the page does not open, refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).
3. If you are using static network settings for the Sunny WebBox, enter the static IP address of the Sunny WebBox in the address bar and press the enter key. If you do not know the IP address of the Sunny WebBox, see Section 9.4 "Determining the Current Network Settings of the Sunny WebBox via the SD Card" (page 43).

   ☑ The Sunny WebBox login page opens.

   – If the page does not open, refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).

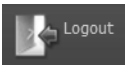


4. Select the desired language.
5. In the "User" field, select the user group you wish to log in to.
6. In the "Password" field, enter the password belonging to the selected user group.
7. Select [Login].

☑ The Sunny WebBox user interface opens

7.2 Logging out of the Sunny WebBox

1. Select [Logout] in the icon bar.



☑ The Sunny WebBox login page opens. You have successfully logged out.

8 Connecting Sunny WebBox Internet Access

8.1 Information on Sunny WebBox Internet Access

Changing extended network settings

Do not change any network settings in the network devices if you are not clear about the effects of the change. Changes to values could lead to the existing network not functioning at all or only working partially. If you have any questions, contact your network administrator.

If you use a proxy server for the Internet connection, you must make proxy settings in the Sunny WebBox (see Section 8.2 "Making Proxy Settings" (page 36)).

If you would like to make the Sunny WebBox available via the Internet to allow, for example, direct access to the Sunny WebBox via Sunny Portal, you must configure port forwarding in your router. For this purpose, it is sometimes necessary to adjust the network ports for the Sunny WebBox (see Section 8.3 "Setting the HTTP Port" (page 37) and Section 8.4 "Setting the NAT Port" (page 37)).

8.2 Making Proxy Settings

If there is a proxy server in your network, you must make proxy settings in the Sunny WebBox. The proxy settings of the Sunny WebBox are required for connection to the Sunny Portal and for firmware updates to the Sunny WebBox or the devices in your PV plant.

Using the Proxy Server

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "External Communication" > "Proxy settings" parameter group.
3. In the "Activated" field, select "Yes" to use a proxy server.
4. In the "Login" field, enter the login name for the proxy server.
5. In the "Port" field, enter the network port at which the proxy server is available.
6. In the "Password" field, enter the password for the proxy server.
7. Confirm the password entered in the "Confirm the password" field.
8. In the "Server" field, enter the proxy server IP address.
9. Select [Save].

Not Using the Proxy Server

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "External Communication" > "Proxy settings" parameter group.
3. In the "Activated" field, select "No" to not use a proxy server.
4. Select [Save].

8.3 Setting the HTTP Port

Adjusting the network ports

Changing the ports is only necessary in rare cases. Before adjusting the ports, contact your network administrator.

The HTTP port is the network port at which the Sunny WebBox user interface is available in the local network. The HTTP Port is set to 80 by default.

If you set another HTTP port, you must enter this when opening the user interface behind the IP address.

Example: the IP address of the Sunny WebBox is 192.168.0.168 and you have changed the HTTP port to 8080. You must then enter "http://192.168.0.168:8080" in the address bar of the Internet browser.

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > HTTP" parameter group.
4. Select [Edit].
5. In the "Port" field, set the desired port (default setting: port 80).
6. Select [Save].

8.4 Setting the NAT Port

Adjusting the network ports

Changing the ports is only necessary in rare cases. Before adjusting the ports, contact your network administrator.

During data transmission, the Sunny WebBox sends the IP address and port at which the Sunny WebBox is available on the Internet to the Sunny Portal. You must set up corresponding port forwarding and release the desired port in the router (see router manual). The NAT port is set to 80 by default. If there are multiple Sunny WebBoxes in your local network, you must select different NAT ports. If you have selected an NAT port other than 80, you must also set the changed NAT port in the Sunny WebBox.

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > Nat" parameter group.
4. Select [Edit].
5. Enter the required port in the "Port" field.
6. Select [Save].

9 Service Functions

9.1 Performing Own Update for Sunny WebBox

9.1.1 Information

You have the option of updating the Sunny WebBox firmware. You can perform the firmware update via the Internet or locally via the SD card. The existing settings of the Sunny WebBox and data from the PV plant remain available after the update procedure. In order to keep the Sunny WebBox firmware up to date at all times, automatic firmware updates via the Internet are recommended.

The update procedure is indicated by the flashing orange "SYSTEM" LED and occasionally by a red light chaser across all LEDs. The firmware update is complete when the "SYSTEM" LED glows green. An update procedure can take up to a maximum of 20 minutes.

Reading off the current firmware version of the Sunny WebBox

You can find the current firmware version of the Sunny WebBox in the status bar at the bottom left-hand corner of the user interface.

User interface temporarily unavailable

During the update, the Sunny WebBox restarts and you will not be able to access the Sunny WebBox user interface for a short period of time.

Do not disconnect the Sunny WebBox from the voltage supply during the update procedure.

9.1.2 Firmware Update via the Internet (Recommended)

If the Sunny WebBox has Internet access, you can update the Sunny WebBox via the Internet automatically or manually.

Activating/deactivating automatic firmware update

When the automatic firmware update is activated, the Sunny WebBox checks for new firmware updates once a day. If a new firmware update is available, the Sunny WebBox downloads the firmware update from the Internet. The update procedure starts automatically at night between 11:00 p.m. and 11:30 p.m.

Unexpected interruption of an automatically started update procedure

If an automatically started update procedure of the Sunny WebBox is interrupted (e.g. as a result of a power outage), the Sunny WebBox restarts the update procedure in the next defined time period.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > Update" parameter group.
3. Click on the [Edit] button.

4. In the "Automatic update" field, select "Yes" in order to activate the automatic firmware update (default setting).

   or

   In the "Automatic update" field, select "No" to deactivate the automatic firmware update.

5. Select [Save].

Manually Updating the Firmware

NOTICE

Loss of plant data possible!

Only perform a manual firmware update when the PV plant is not in operation (e.g. during the night). Otherwise, losses may occur during the recording of the plant data.

You can also carry out manual updates when the automatic firmware update is activated.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > Update" parameter group.
3. In the "Check for update and install it" field, select [Execute].

☑ The Sunny WebBox checks whether a new firmware update is available. If a new firmware update is available, the Sunny WebBox downloads the firmware update from the Internet and starts the update procedure.

9.1.3 Firmware Update via the SD Card

NOTICE

Loss of plant data possible!

Only perform a manual firmware update when the PV plant is not in operation (e.g. during the night). Otherwise, losses may occur during the recording of the plant data.

NOTICE

Loss of data on the SD card possible!

Do not remove the SD card while the "SD CARD" LED is flashing green or orange. This can damage the file system of the SD card and lead to data loss. Depending on the amount of data, the writing process can take some time.

Using a separate SD card for firmware updates

Use a separate SD card for firmware updates, which contains only the update files for the Sunny WebBox. If there are update files on the external SD card, exporting XML and CSV files is deactivated.

Take note of the information on the SD card (see Section 14.1 "Information on the SD Card" (page 53)).

1. Select the required update file in the downloads area at www.SMA-Solar.com and download it to your computer.
2. Connect the SD card to the computer and create a folder called "UPDATE" on the SD card.
3. Copy the downloaded update file (*.up2) to the "UPDATE" folder created on the SD card, and then remove the SD card from the computer.

Saving only one update file in the "UPDATE" folder.

The "UPDATE" folder may only ever contain one update file. If there is more than one update file in the "UPDATE" folder, the firmware will not be updated.

4. Remove the plug-in power supply of the Sunny WebBox from the socket-outlet.
5. Insert the SD card into the Sunny WebBox SD card slot.
6. Insert the plug-in power supply of the Sunny WebBox into the socket-outlet.

☑ After approximately 90 seconds, the Sunny WebBox is ready for operation and the update process starts.

9.2 Restarting the Sunny WebBox via the User Interface

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > System" parameter group.
3. In the "Initiate device restart" field, select [Execute].
4. Select [OK].

☑ The Sunny WebBox is restarted. The restart was successful if the "SYSTEM" and "POWER" LEDs glow green again. The start-up procedure can take up to 90 seconds.

- If the "SYSTEM" or "POWER" LEDs do not glow green, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).

9.3 Resetting the Sunny WebBox Using the Reset Button

You can reset the Sunny WebBox through a small hole in the rear side of the Sunny WebBox, behind which the Reset button is hidden. For this purpose, the Sunny WebBox must be supplied with current.

Data backup

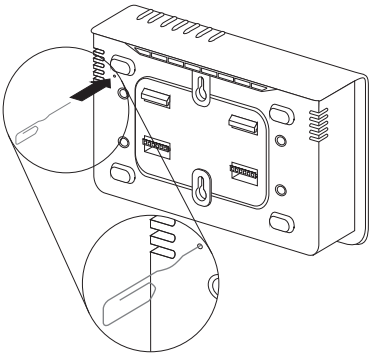
Before you reset the Sunny WebBox, make a note of all settings such as network or portal settings if necessary. In addition, save the PV plant data, for example via the SD card or FTP download, in order to avoid data losses.

Depending on how long you press the Reset button, the Sunny WebBox performs the actions listed in the following table.

Duration	Action
1 ... 5 seconds	Resets the passwords to the default setting. All other PV plant settings and data are retained.
5 ... 15 seconds	Resets the network settings to the default setting. All other PV plant settings and data are retained.
15 ... 60 seconds	Resets all settings (event memory, network settings, modem settings, portal settings and passwords) of the Sunny WebBox back to the default settings. PV plant data will be fully deleted.
Over 60 seconds	The Sunny WebBox is not reset. All settings are retained.

1. Use a sharp object to press the hidden reset button through the hole.

☑ The Sunny WebBox is reset.



9.4 Determining the Current Network Settings of the Sunny WebBox via the SD Card

The following steps allow you to determine the current settings and the current firmware of the Sunny WebBox if you do not have access to the user interface.

Take note of the information on the SD card (see Section 14.1 "Information on the SD Card" (page 53)).

1. Insert the SD card into the Sunny WebBox SD card slot.
   ☑ The Sunny WebBox creates a folder with the name "WEBBOX_[serial number]" on the SD card and saves the "config.xml" file there. The writing process is complete when the "SD CARD" LED glows continuously. *Example: WEBBOX_0155000123\config.xml*
2. When the "SD CARD" LED glows continuously, remove the SD card from the Sunny WebBox SD card slot.
3. Read the SD card using a computer with an SD card reader.
4. Open the "config.xml" file in the WebBox_[Serial number] folder with a text editor or an Internet browser.
5. Read the values of the network settings of the Sunny WebBox (see Section 14.2 "Structure of the config.xml File" (page 53)).

10 Maintenance and Care

10.1 Maintenance

Conduct regular visual inspections of the Sunny WebBox to check for external damage or soiling.

10.2 Care

NOTICE

Damage to the device due to ingress of liquids

- The Sunny WebBox is not waterproof. Protect the Sunny WebBox from wet conditions.
- When cleaning the device, only use a lightly damp cloth in order to prevent water from entering the device. If there is a considerable amount of dirt, you can also use a mild, non-abrasive, non-corrosive cleaning agent.

11 Decommissioning

11.1 Dismounting the Sunny WebBox

NOTICE

Loss of plant data possible!

Only disconnect the Sunny WebBox from the voltage supply when the PV plant is not in operation (e.g. at night). Otherwise, losses may occur during the recording of the plant data.

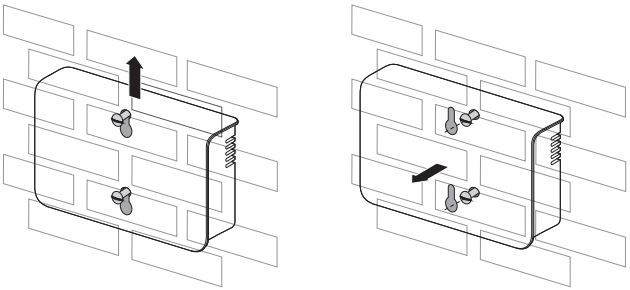
NOTICE

Loss of data on the SD card possible!

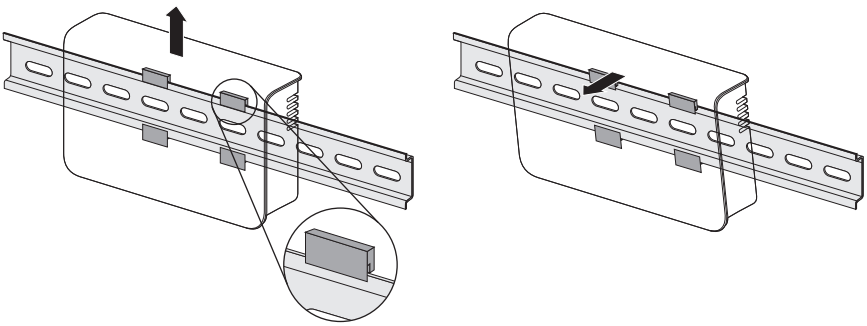
Do not disconnect the Sunny WebBox from the voltage supply while the "SD CARD" LED is flashing green or orange. This can damage the file system of the SD card and lead to data loss. Depending on the amount of data, the writing process can take some time.

1. Remove the plug-in power supply of the Sunny WebBox from the socket-outlet.
2. Remove the DC plug of the plug-in power supply from the enclosure.
3. Remove the Sunny WebBox patch cable.
4. Depending on the mounting type, dismount the Sunny WebBox as follows:

   Wall mounting



Top-hat rail mounting



11.2 Packaging the Sunny WebBox

For return shipment, use packaging appropriate for transport – if possible the original packaging.

11.3 Disposing of the Sunny WebBox

At the end of its service life, dispose of the Sunny WebBox in accordance with the currently applicable disposal regulations for electronic waste at the installation site. Alternatively, send it back to SMA Solar Technology AG at your own expense labelled "ZUR ENTSORGUNG" ("FOR DISPOSAL").

12 Troubleshooting

12.1 General Troubleshooting for the Sunny WebBox

No.	Problem	Cause	Remedy
1	The Sunny WebBox is not available via the user interface. **or** You cannot find the Sunny WebBox via the Sunny WebBox Assistant.	The Sunny WebBox is not connected to the network or to the voltage supply.	• Connect the Sunny WebBox with the patch cable directly to the computer or the local network and supply the Sunny WebBox with voltage (see page 23).
		Incorrect network settings of the network components	• Use the Sunny WebBox Assistant for commissioning. • Check the network settings of the computer with which you wish to access the Sunny WebBox. Adjust the network settings if necessary. • Reset the Sunny WebBox (see page 42) and repeat the commissioning. • Check the network settings for the individual network components (e.g., router, proxy server, etc.). Adjust the network settings if necessary. • Please contact your network administrator.
		A firewall is blocking the connection.	• Deactivate the computer firewall or enable the necessary connection.
		Defective or damaged network components, patch cables or plug connections	• Replace the defective or damaged parts of the network. • Please contact your network administrator.

No.	Problem	Cause	Remedy
1	The Sunny WebBox is not available via the user interface. **or** You cannot find the Sunny WebBox via the Sunny WebBox Assistant.	The Internet browser is configured incorrectly.	• If there is a proxy server in your network, you must enter an exception for the proxy server in your Internet browser (see Section 14.4 "Information on Your Internet Browser" (page 56)).
		There is no Internet connection.	• Re-establish Internet access. If necessary, contact your Internet service provider.
		The Sunny WebBox has not been started correctly.	• Remove the Sunny WebBox plug-in power supply from the socket-outlet and plug it back in after a short time in order to restart the Sunny WebBox. Note that this can lead to loss of collected plant data.
		The proxy server does not support IPv6.	• Use a proxy server that supports IPv6.
2	The "SYSTEM" LED continuously flashes red.	A system fault has occurred.	• Remove the Sunny WebBox plug-in power supply from the socket-outlet and plug it back in after a short time in order to restart the Sunny WebBox. Note that this can lead to loss of collected plant data. • Contact the SMA Service Line.
3	The "POWER" LED is off.	The Sunny WebBox is not supplied with voltage.	• Check the voltage supply of the socket-outlet and rectify any faults.
4	The "SD CARD" LED is glowing red.	The SD card is full.	• Replace the SD card or format the SD card in FAT16 format.
		The SD card is write-protected.	• Remove the write protection of the SD card.
		There is more than one update file in the "UPDATE" folder on the SD card.	• Delete the update file or perform the update.

No.	Problem	Cause	Remedy
5	Parameters cannot be edited.	You do not possess the necessary rights for the parameter.	• Change the user group.
		You have an inverter with upgraded SMA *Bluetooth* Piggy-Back with a firmware version lower than 02.00.00.R.	The configuration of parameters and the graphical presentation of monthly and annual energy values are not supported. • Update the firmware of the *Bluetooth* Piggy-Back using Sunny Explorer.
6	Windows does not display the LAN connection.	The network card device driver (Ethernet card) is not installed.	• Check the installation of the network adaptor in the Windows device manager and re-install the device driver.
		The computer network card is faulty.	• Replace the faulty network card with a new network card.
7	Fault in the user interface display.	JavaScript is not enabled.	• Enable JavaScript in your Internet browser.

12.2 Troubleshooting the *Bluetooth* Connection

No.	Problem	Cause	Remedy
1	The Sunny WebBox does not display any *Bluetooth* devices.	An incorrect NetID is set.	• Set the NetID of the PV plant (see Section 6.2 "Configuring Bluetooth Settings for the Sunny WebBox" (page 24)) and repeat the commissioning).
		The connection to the *Bluetooth* plant is too weak.	• Shorten the distance to the devices or use an SMA *Bluetooth* Repeater in order to extend the radio range. Repeat the commissioning (see page 23).
		There are already four masters connected to the *Bluetooth* plant.	• Remove a master and repeat the commissioning (see page 23).
		There are already two participants connected to the device through which you want to set up a connection to the *Bluetooth* plant.	• Change the position of the Sunny WebBox in order to set up a connection via another device in the plant or remove one master from the plant. Further information on SMA *Bluetooth* can be found in the download area at www.SMA-Solar.com

No.	Problem	Cause	Remedy
2	Inverter is not accessible.	The *Bluetooth* connection was interrupted.	• Wait until the Sunny WebBox has automatically re-established the connection.
		Parameters for the *Bluetooth* communication were changed.	When setting parameters that regulate the *Bluetooth* connection (e.g. parameters for the radio range and country parameters), the communication via *Bluetooth* is interrupted for some time because the inverters are carrying out a restart of the communication interface. This does not relate to inverters with upgraded SMA *Bluetooth* Piggy-Backs. • Wait until the inverter has completed a restart. The inverter is then accessible again.
		Inverter with upgraded SMA *Bluetooth* Piggy-Back is in night mode.	• Wait until the inverter is again working in normal operation. The inverter is then accessible again.
		The inverter has not been set to the NetID of your PV plant and commissioned.	• The inverter must be set to the NetID of your PV plant and commissioned. Contact your installer.
3	The Sunny WebBox displays unknown inverters.	The set NetID is already assigned by an external *Bluetooth* PV plant.	• You must assign the PV plant a free NetID. Contact your installer.
4	An inverter is displayed as an unknown device in the plant tree.	The inverter with integrated *Bluetooth* has an old firmware version (only for inverters SB 3000TL-20, SB 4000TL-20, SB 5000TL-20).	• Ensure that the inverter with integrated *Bluetooth* has the latest firmware version (see technical description "Firmware Update with SD Card" at www.SMA-Solar.com).
		The new inverter type is not detected by the Sunny WebBox.	• Perform own update for the Sunny WebBox (see page 38).

13 Accessories

You will find the corresponding accessories and spare parts for your product in the following overview. If required, you can order them from SMA Solar Technology AG or from your specialist dealer.

Description	Brief description	SMA order number
SMA *Bluetooth* Repeater	SMA *Bluetooth* repeater for increasing the range of SMA *Bluetooth* products for use indoors	BTREP
SD card 1 GB	1 GB Secure Digital Memory Card for Sunny WebBox, I-Grade	SD-Card 1 GB
SD card 2 GB	2 GB Secure Digital Memory Card for Sunny WebBox, I-Grade	SD-Card 2 GB

14 Appendix

14.1 Information on the SD Card

In order to ensure the proper functioning of the SD card, use the SD cards available from SMA Solar Technology AG. Compatibility with all SD cards available on the market cannot be guaranteed. The Sunny WebBox does not support SD cards with storage capacities of more than 2 GB or SDHC cards.

Only use SD cards which have been formatted with the FAT16 file system. If necessary, use the computer to reformat the SD card.

The Sunny WebBox converts the SD card's file system to TFAT in order to increase data security. If you wish to clear the SD card, you must format the SD card on the computer with the FAT16 file system.

14.2 Structure of the config.xml File

The "config.xml" configuration file contains information on the Sunny WebBox network settings, firmware version and further settings.

Example:

```
<?xml version='1.0' encoding='utf-8'?>
<WebBox>
  <Settings>
    <add key='Version' value='1.0.40.B' />
    <add key='Plant-ID' value='' />
    <add key='User-ID' value='Max.Mustermann@SMA.de' />
    <add key='DHCP' value='False' />
    <add key='IP-Address' value='192.168.0.168' />
    <add key='SubNetMask' value='255.255.255.0' />
    <add key='Gateway' value='192.168.0.1' />
    <add key='DNS-Server' value='192.168.0.1' />
    <add key='NAT-Port' value='80' />
    <add key='Webserver-Port' value='80' />
    <add key='Webservice-Port' value='80' />
  </Settings>
</WebBox>
```

Setting	Meaning
Version	The current firmware version of the Sunny WebBox
Plant-ID	Plant ID for Sunny Portal
User-ID	User ID for Sunny Portal
DHCP	Displays whether the network settings are acquired via DHCP
IP-Adresse	The current IP address of the Sunny WebBox
SubNetMask	The current subnet mask of the Sunny WebBox
Gateway	The set gateway IP address
DNS-Server	The set DNS server IP address
NAT-Port	The currently set NAT port
Webserver-Port	The currently set port of the web server
Webservice-Port	The set port of the web service

14.3 Structure of an XML Data File

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
 <Info>
  <Created>2012-11-22T11:10:00</Created>
  <Culture>de</Culture>
  <UtcOffset>60</UtcOffset>
 </Info>
 <CurrentPublic>
  <Key>Meine Sunny WebBox:155001390:Metering.TotWhOut</Key>
  <Mean>34698.724</Mean>
  <Unit>kWh</Unit>
  <Base>1</Base>
  <Period>300</Period>
  <Timestamp>2012-11-22T11:10:00</Timestamp>
 </CurrentPublic>
  <MeanPublic>
  <Key>Meine Sunny WebBox:155001390:GridMs.TotW</Key>
  <Min>405</Min>
  <Max>3719</Max>
  <Mean>9019</Mean>
  <Unit>W</Unit>
  <Base>1</Base>
  <Period>300</Period>
  <Timestamp>2012-11-22T11:10:00</Timestamp>
  </MeanPublic>
  <MeanPublic>
 (...)
  </MeanPublic>
</WebBox>
```

Setting	Meaning
Info	Information
Create	Date of generation
Culture	Language
UtcOffset	Offset in minutes to UTC (Universal Time Coordinated)
MeanPublic	Data of the mean values
CurrentPublic	Data of the instantaneous values
Key	Name of the element made up of device name, device serial number and the parameter name. Individual values are separated by a colon. *Example: <Key>Sunny WebBox:155000234:Metering.TotWhOut</Key>*
Min	Smallest value in measurement interval/merging
Max	Largest value in measurement interval/merging
Mean	Average value in measurement interval/merging
Base	Number of measured values in the interval/number of merged values
Period	Length of the measurement interval in seconds
TimeStamp	Time stamp at which the average was calculated

14.4 Information on Your Internet Browser

In order to be able to call up the Sunny WebBox user interface, you need a current Internet browser. You can use the default settings of your Internet browser.

- Ensure that JavaScript is activated.
- If a proxy server is active in your network, you must set up a proxy exception rule in your browser (see page 56).

14.5 Setting up a Proxy Exception Rule in Internet Explorer

1. Start Internet Explorer.
2. In Internet Explorer, select "Tools > Internet Options".
3. The "Internet Options" window opens.
4. Select the "Connections" tab, then click [Settings].
5. Select [Advanced].
6. In the "Do not use proxy server for addresses beginning with:" field, enter the address *192.168.**.
7. Confirm the entries with [OK] and close each further window with [OK].

14.6 Activating IPv6 in Windows XP SP2

In order to be able to locate the Sunny WebBox with the Sunny WebBox Assistant, IPv6 is required.

IPv6 stands for Internet Protocol Version 6 and specifies the procedures that are necessary for data transmission via a packet-switching data network.

IPv6 is the successor to IPv4, which is still predominantly used on the Internet. IPv6 is already activated in Windows Vista, Windows 7, MacOS and Linux. In Windows XP SP2, you must activate IPv6.

In order to activate IPv6, proceed as follows:

1. In Windows, select "Start > Settings > Network Connections".
2. Double click on the LAN connection via which the Sunny WebBox is connected.
   - If Windows displays several LAN connections, there are probably several network connections installed on the computer. Ensure that you select the network connection that the computer is using to connect to the Sunny WebBox. If necessary, refer to the manual of your computer.
   - In the event that no LAN connection is displayed, please refer to Section 12.1 "General Troubleshooting for the Sunny WebBox" (page 47).

   ☑ The "Local Area Connection Status" window opens.
3. Select [Properties] in the "General" tab.

   ☑ The "Local Area Connection Properties" window opens.
4. Activate "Microsoft TCP/IP Version 6"
5. Select [OK].

14.7 Allocating an IP Address in a Local Network

You select a static IP address (Internet Protocol) yourself. Use the address range which is available to your router. In most cases the address range of the router lies between 192.168.0.1 and 192.168.255.254. If necessary refer to the manual of your router.

Please note during the allocation of the IP address that the first three address parts of the IP address must be identical for all participants of the same network. You may not allocate the same IP address twice.

Example.

Router:	***192.168.0.****1*
Computer 1	***192.168.0.****2*
Computer 2	***192.168.0.****3*
Sunny WebBox	***192.168.0.****168*

15 Technical Data

15.1 Sunny WebBox with *Bluetooth*

Mechanical Data

Width x height x depth	226 mm x 130 mm x 57 mm
Weight	750 g

Voltage Supply

Typical power consumption	4 W
Maximum power consumption	12 W

Ambient Conditions

Ambient temperature	–20°C ... +65°C
Relative humidity	5% ... 95%, non-condensing
Degree of protection*	IP20

*Degree of protection according to DIN 60529

Communication

Sunny Boy, Sunny Mini Central*, Windy Boy with SMA *Bluetooth* interface	*Bluetooth*
Computer	10/100 Mbit Ethernet
Maximum number of SMA *Bluetooth* devices with 1 master	50
Maximum number of SMA *Bluetooth* devices with 2 masters	25
Maximum *Bluetooth* radio range in free-field conditions	100 m
Max. Ethernet radio range per segment	100 m

*Apart from the USA

Other

User interface languages	German, English, French, Italian, Spanish, Greek, Korean, Portuguese, Czech, Dutch
Internal ring buffer	12.5 MB
Memory expansion via SD memory cards*	1 GB/2 GB

*Optional

15.2 Plug-in Power Supply Units

15.2.1 CINCON, TRG30R 120

Mechanical Data

Width x height x depth	107.8 mm x 57.5 mm x 33.5 mm
Weight	300 g

Voltage Supply

Voltage	100 V ... 240 V AC, 50/60 Hz
Nominal current	0.8 A

15.2.2 TaiyTech, TYT251200200UV/3000

Mechanical Data

Width x height x depth	92.0 mm x 58.0 mm x 41.4 mm
Weight	244 g

Voltage Supply

Voltage	100 V ... 240 V AC, 50/60 Hz
Nominal current	0.75 A

15.2.3 TaiyTech, TYT251200200EU/3000

Mechanical Data

Width x height x depth	92.0 mm x 90.6 mm x 36.0 mm
Weight	128 g

Voltage Supply

Voltage	100 V ... 240 V AC, 50/60 Hz
Nominal current	0.75 A

16 Contact

If you have technical problems concerning our products, contact the SMA Service Line.
We require the following information in order to provide you with the necessary assistance:

- Sunny WebBox firmware version
- Sunny WebBox serial number and hardware version
- Type of communication interface between Sunny WebBox and the inverters
- Type and serial numbers of the inverters connected to the plant

SMA Solar Technology AG

Sonnenallee 1

34266 Niestetal, Germany

www.SMA.de/en

SMA Serviceline

Inverters: +49 561 9522 1499

Communication: +49 561 9522 2499

Fax: +49 561 9522 4699

E-Mail: Serviceline@SMA.de

Legal Provisions

The information contained in this document is the property of SMA Solar Technology AG. Publishing its content, either partially or in full, requires the written permission of SMA Solar Technology AG. Any internal company copying of the document for the purposes of evaluating the product or its correct implementation is allowed and does not require permission.

Declaration of Conformity

SMA Solar Technology AG hereby declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The entire EC Declaration of Conformity can be found at www.SMA-Solar.com.

SMA Factory Warranty

The current warranty conditions come enclosed with your device. These are also available online at www.SMA-Solar.com and can be downloaded and are available on paper from the usual sales channels if required.

Trademarks

All trademarks are recognized even if these are not marked separately. Missing designations do not mean that a product or brand is not a registered trademark.

The *Bluetooth*® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by SMA Solar Technology AG is under licence.

QR Code® is a registered trademark of DENSO WAVE INCORPORATED.

SMA Solar Technology AG
Sonnenallee 1
34266 Niestetal
Germany

Tel. +49 561 9522-0
Fax +49 561 9522-100
www.SMA.de
E-Mail: info@SMA.de

© 2004 to 2012 SMA Solar Technology AG. All rights reserved

SMA Solar Technology

www.SMA-Solar.com

SMA Solar Technology AG
www.SMA.de

SMA Australia Pty. Ltd.
www.SMA-Australia.com.au

SMA Benelux bvba/sprl
www.SMA-Benelux.com

SMA Beijing Commercial Company Ltd.
www.SMA-China.com.cn

SMA Central & Eastern Europe s.r.o.
www.SMA-Czech.com

SMA France S.A.S.
www.SMA-France.com

SMA Hellas AE
www.SMA-Hellas.com

SMA Ibérica Tecnología Solar, S.L.U.
www.SMA-Iberica.com

SMA Solar India Pvt. Ltd.
www.SMA-India.com

SMA Italia S.r.l.
www.SMA-Italia.com

SMA Japan K.K.
www.SMA-Japan.com

SMA Technology Korea Co., Ltd.
www.SMA-Korea.com

SMA Middle East LLC
www.SMA-Me.com

SMA Portugal - Niestetal Services Unipessoal Lda
www.SMA-Portugal.com

SMA Solar (Thailand) Co., Ltd.
www.SMA-Thailand.com

SMA Solar UK Ltd.
www.SMA-UK.com

CE

SMA